

QUIZ 2
Spring 2005-2006
 (Wednesday May 3, 2006)
CIVE311 – STRUCTURES I
CLOSED BOOK, 1 & 1/2 HOURS

Name: _____

ID#: _____

NOTES

- 1 PROBLEM – 3 QUESTIONS - 10 PAGES.
- ALL YOUR ANSWERS SHOULD BE PROVIDED ON THE QUESTION SHEETS.
- **ONE EXTRA SHEET IS PROVIDED AT THE END.**
- **ASK FOR ADDITIONAL SHEETS IF YOU NEED MORE SPACE.**
- SOME ANSWERS MAY REQUIRE MUCH LESS THAN THE SPACE PROVIDED.
- ***DO NOT*** USE THE BACK OF THE SHEETS FOR ANSWERS.
- DRAFT BOOKLET WILL BE PROVIDED; BUT DO NOT USE FOR ANSWERS.
- BOTH QUESTION SHEETS AND DRAFT BOOKLET SHOULD BE RETURNED.
- CHECK BOXES ARE TO CONFIRM THAT YOU HAVE SOLVED A QUESTION.



YOUR COMMENT(S)

DO NOT WRITE IN THE SPACE BELOW

MY COMMENT(S)

YOUR GRADE

QUESTION 1: __ /55
 QUESTION 2: __ /30
 QUESTION 3: __ /15
 Other: ---

TOTAL: /100

Problem I/I:

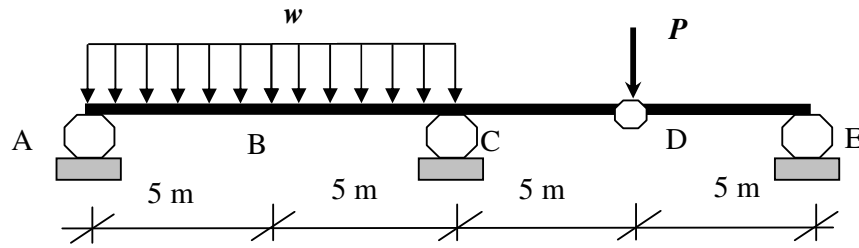


Figure I

Referring to Figure I:
 EI=1,000,000 kN.m² throughout the beam (except in Question 3).
 w=20 kN/m and P=20 kN throughout the problem.
 Neglect the own weight of the beam.

1. USING THE MOMENT-AREA METHOD

Compute the slope at C (θ_C), the vertical deflections at B and D (v_B and v_D), and the maximum downward deflection between A and C. You can calculate slope and deflections in whichever order you find suitable. (45 points)

Based on the results obtained, neatly/clearly sketch the final deflected shape and show the results obtained. (10 points)

Calculations and Diagrams:

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Calculations and/or Diagrams (cont'd):

Calculations and/or Diagrams (cont'd):

A series of 28 horizontal dashed lines intended for handwritten calculations or diagrams.

Calculations and/or Diagrams (cont'd):

A series of horizontal dashed lines provided for writing calculations and diagrams.

2. USING THE CONJUGATE BEAM METHOD

Compute the slope at D and the maximum downward deflection between C and E. (25 points)

Deduce (with a brief comment) the slope at E. (5 points)

Calculations and/or Diagrams (cont'd):

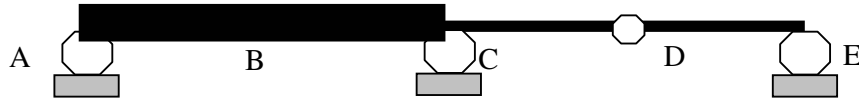
Calculations and/or Diagrams (cont'd):

A series of 25 horizontal dashed lines provided for calculations and diagrams.

3. For the same beam and loads applied as in Figure I, and assuming member AC (Case 1) or member DE (Case 2) to be very stiff, sketch the expected deflected shape of the beam for each of the cases as shown below. (NO CALCULATIONS) (10 points)

Deflected Shapes:

Case 1:



Case 2:



In this Case 2, explain how the deflection and slope results will change from Questions 1 and 2 (ONE LINE ONLY) and comment (ONE LINE ONLY). If you write more than TWO LINES, you will not be credited. (5 points)

EXTRA SHEET 1/1: Continued from page _____

Name: _____

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Calculations and/or Diagrams:

